



**CEPES**

**Center for Environmental Policy,  
Economics and Science**

# **POLLUTION PREVENTION VENTURE CAPITAL:**

## **WHAT INVESTORS CONSIDER IN POLLUTION PREVENTION FIRMS**

### **Prepared by:**

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### **Sponsored by:**

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401 M Street, SW  
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# I. INTRODUCTION

The commercialization of pollution prevention technologies, products and services is critical to the development of an industrial structure that is both economically viable and ecologically sustainable. For significant commercialization to occur, there must be increases in the demand for and the supply of these technologies, products and services over current levels. Recent figures indicate favorable trends along both of these lines.<sup>1</sup>

Notwithstanding these positive projections, the actual rate of growth of the P2 industry will largely be constrained by the degree to which the typical new and small P2 firm is able to arrange external financing of its

venture.<sup>2</sup>

For such capital-raising efforts to be effective, the P2 entrepreneur must have a clear understanding of how investors learn about companies, and what investors consider in the investment opportunities that they find.<sup>3</sup> It is the purpose of this report to provide insight into both aspects of investor behavior, so that future capital-raising efforts by P2 firms might be more successful.

## I.A. Methodology

The findings presented are based upon detailed information provided by 69 investors who have expressed interest in environmentally-related companies. The Center's Environmental Capital Network project<sup>4</sup> identified 45 investors, while 24 other investors responded to a mailing by the Center to more than 1,000 wealthy subscribers of *Good Money*, a socially responsible investment newsletter.

Investor data were derived from a cross section of individual investors, investor groups, investment banking firms, finance companies, venture capital firms, and larger corporations looking

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<sup>1</sup> The demand for pollution-related "production process enhancements" by U.S. manufacturing, mining, petroleum and electric utilities companies of more than 20 employees grew to \$5.7 billion in 1994, a 6% jump over 1993 (Source: Tables 4a-c and 15a-c. Pollution Abatement Costs and Expenditures 1994 and 1993. A Current Industrial Report. No. MA200. 1994 and 1993 Editions. Washington DC: U.S. Department of Commerce.)

The pollution prevention technology and equipment sectors of the industry more than doubled in size from \$400 million in 1990 to \$900 million in 1995, and is expected to grow by \$200 million per year between 1996 and 1998. By the year 2000, this sector is projected to be at a level of \$1.7 billion, or roughly double the 1995 level (Source: Estimated from data published in the Environmental Business Journal. Environmental Business International Inc., San Diego, CA. Vol IX, No. 4/5 April/May 1996.)

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<sup>2</sup> Assuming sustained demand, the P2 industry may require hundreds of millions of dollars in new investment capital to expand production and service capacity, and to develop and commercialize new P2 technologies. Much of this capital will be equity capital supplied by individual investors, investor groups, finance companies, leasing companies, larger corporations, venture capitalist firms, and other non-bank private financial sources.

<sup>3</sup> Hall, John and Hofer, Charles W. "Venture Capitalists' Decision Criteria in New Venture Evaluation" Journal of Business Venturing. No. 8. (New York, NY), 1993. p. 40.

<sup>4</sup> The Environmental Capital Network project introduces environmental companies to potential investors and assists companies with business planning.

for technologies and merger/acquisition opportunities.

The data were captured on a "Private Investor Information Request" form, shown in Appendix A. Investors indicated:

- Whether they "Strongly Consider," "Mildly Consider," or "Do not Consider" 10 *subjective* characteristics of a firm,
- How effective (from "High" to "None") are 14 information sources used to locate venture investment opportunities, and
- Whether they "Look For," "Avoid" or "Ignore" more than 160 *objective* business and finance characteristics of P2 companies. These objective characteristics were grouped into 18 different "Business Description" and "Financing Sought" categories. Investors could choose to "prefer" or "avoid" more than one characteristic per category.

For example, within the Business Development Stage category, investors could check that they (1) "look for" investing in companies that are *Concept Stage, Prototype/ Demo* and *Less than 2 years in operation*, and (2) "avoid" firms that are from *2 up to 5 years in operation* or *5 or more years in operation*.

### 1.A.1 Data Analysis

The data are presented in terms of percent of investors responding to each characteristic listed.<sup>5</sup>

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<sup>5</sup> For example, the report would indicate that

To better reflect sectors within the investor community, the Center organized investor data records into two separate sub-groups: Early-stage (ES) investors and later-stage (LS) investors. These sub-groups are defined by the type of company the investor is most interested in, and cut across specific types of investor organizations (e.g. individuals, venture capital firms, etc.).

Many successful, growing companies need both early- and later- stage investors. Early-stage investors tend to be more comfortable with the higher degrees of risk inherent in newer and smaller companies. They are also better geared to meet the smaller capital needs of early financing rounds. Later stage investors tend to invest significantly more capital per round than early-stage investors, and more easily and efficiently meet the needs of larger companies.<sup>6</sup>

For purposes of this analysis, ES investors are defined as those investors most interested in companies that have been in operation less than 2 years and/or have annual revenues under \$1 million dollars. Many ES investors consider seed stage companies -- i.e. firms that have not yet commercialized a technology, product or service.

LS investors are most interested in established companies that are at least 5 years old and have sales of \$5 million or more. Typically these investors seek opportunities where uncertainty about a firm's product, market, management, and potential has been significantly reduced.

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60% of investors look for firms *less than 2 years in operation* if the data showed 30 investors indicated that they "look for", and 20 other investors either "avoid" or "ignore" a company with *less than 2 years in operation*.

<sup>6</sup> Freear, J. and Wetzel, W. "Equity Financing for New Technology-based Firms." In Frontiers for Entrepreneurship Research 1988. Wellesley, MA: Babson College, p. 356.

Not surprisingly, there is some overlap between the two groups. Many ES and LS investors will consider firms that have sales of \$1-5 million and/or have been in operation for 2-5 years.

There were a total of 38 investors in the ES Investor group and 46 investors in the LS Investor group. There were 15 investors who expressed *both* ES and LS investor preferences and who were therefore included in *both* groups.

## **I.A.2. Data Presentation**

Highlights of the preference data for ES and LS investors are presented in text form, and accompanying frequency distribution charts are located in Appendix B.

## **I.B. Limitations of this Study**

As this study is preliminary and of a small scale, there remains ample opportunity for further exploration, delineation and understanding of its findings. Research using larger sample sizes, a higher degree of randomness, and greater *a priori* stratification might yield more precise information.

## **I.C. Acknowledgments**

The Center would like to extend its appreciation to the U.S. Environmental Protection Agency (EPA) Office of Pollution Prevention and Toxics (OPPT) which provided funding to make this research and report possible.

On November 15, 1993, Erskine B. Bowles, then Administrator of the Small Business Association, and Carol M. Browner, Administrator of EPA, signed a Memorandum of Understanding to "ensure that the U.S. Government effectively encourages, supports and enables U.S. small businesses to develop, market, and/or adopt cost-effective environmental (including pollution prevention) technologies to achieve

economic growth and environmental compliance."

This study is but one of many projects initiated by the Office of Pollution Prevention and Toxics to support the goals of the Memorandum of Understanding.

The Center is very grateful to Ed Weiler of OPPT for his excellent input to the development of this report. The Center also appreciates the time and input of John May of Calvert Social Venture Partners, and Ira Rubinstein of the Environmental Business Association of New York State. Finally, the Center thanks the many other individuals who generously contributed their time to provide information for this research.

## **I.D. Disclaimer**

This report should not be relied upon as legal or securities advice. The summary nature of the report yields generalizations that will not apply to all businesses, organizations, or individuals. In addition, the data used and the analysis conducted is believed to be accurate, but neither the Center for Environmental Policy, Economics and Science, nor the U.S. EPA guarantee the accuracy of the data or results, nor do they assume any liability for any loss resulting from, or occurring in connection with, the use of information contained, described, disclosed or referenced in this report.

## II. WHAT INVESTORS LOOK FOR IN P2 FIRMS

This section reports findings concerning how investors 1) obtain leads, 2) regard subjective and objective indicators of a firm's viability, track record and potential, and 3) consider the firm's proposed deal and exit strategy. Further detail can be found in the tables presented in Appendix B of this report.

### II.A. EARLY-STAGE INVESTORS

Early-stage investors are typically individual investors and investor groups who place smaller investments in seed and startup companies.

#### II.A.1. Obtaining Leads

ES investors use a range of sources for investment leads. Those rated to be of "high" or "medium" levels of effectiveness by investors are shown in Table 1.

**Table 1. Effective Sources of Leads (% of Responses)**

**"High" Effectiveness Sources**

Independent Research (32%)

Other Investors (28%)

Other Entrepreneurs (26%)

**"Medium" Effectiveness Sources**

Business Associates (52%)

Other Investors (36%)

Investment Meetings, Forums (32%)

Other Entrepreneurs (32%)

Independent Research (28%)

Clients, Customers, Suppliers (28%)

Accountants, Lawyers, CPAs (28%)

The emphasis ES investors place on personal research and professional contacts is understandable.<sup>7</sup> Research has shown that investors who are familiar with the industry they invest in tend to be more successful than investors who invest in industries they know little about.<sup>8</sup>

#### II.A.2. Evaluating Viability

Investors consider a range of subjective factors when evaluating a firm's viability and potential.

More than 70% of ES investors "strongly consider" a firm's market potential, market need (i.e. active demand for the company's technology, product or service), management, and profit potential. Firms must know what their market is, how to sell to that market, and why customers will buy. The investor will typically require clear evidence that the company's product or service has a clear channel of distribution and market acceptance.<sup>9</sup> The investor will tend to look closely at the proven capabilities of the management team, and want to understand how the business will be profitable.

In addition, most early-stage investors "strongly consider" a firm's business plan. Investors learn much about the

<sup>7</sup> In contrast to investors in environmental companies, California and New England early-stage investors in better known technology industries ranked "business associates" and "friends" as the most valuable sources of leads, followed by "active personal search." (Tymes, E.R. and Krasner, O.J. "Informal Risk Capital in California." *Frontiers for Entrepreneurship Research* 1983. Babson College (Wellesley, MA) , p. 364).

<sup>8</sup> Haar, Nancy et al. "Informal Risk Capital Investment Patterns on the East Coast of the U.S.A." *Journal of Business Venturing* No. 3 (New York, NY), 1988. p. 28.

<sup>9</sup> Haar, p. 28.

business based upon the plan's quality and its description of the business and its growth strategy. Indeed, more than 90% of ES investors look for business plans that are complete and current. More than 70% of ES investors avoid investing in businesses that have no plan.

### II.A.3. Track Record

Investors look very closely at indicators of risk. They consider the firm's stage of development, recent revenues, and recent profits. This information may provide important clues about the firm's products, its customers, the business strategy, and management's abilities.

**Business Stage:** More than 80% of ES investors look for companies that have been operational up to 5 years. Roughly 50% of ES investors also indicated they look for businesses that are not yet operational, while 30% avoid such firms.

**Revenues Last 12 Months:** A majority look for firms with sales of \$100,000 to \$10 million. More than 65% of ES investors look for firms with annual sales of \$500,000 to \$5 million.

**Profits Last 12 Months:** More than a third of ES investors look for firms that currently generate profit. Most early-stage investors do not consider profits over the last 12 months, however.

### II.A.4. Potential

The potential financial return or "upside" of the investor's decision is linked directly to targeted future sales, the time until the firm's cash flow passes break-even and becomes profitable, and the rate of return on investment.

**Projected Sales in 5 Years:** More than 70% of ES investors look for firms projected to reach at least \$10 million in sales in 5 years.

**Cash Flow Break Even After Financing:** Roughly 80% of ES investors look for firms that achieve cash flow break even in less than three years. More than 60% of ES investors avoid firms with break even expectations of five or more years.

**Projected Annual Rate of Return:** More than 65% of ES investors look for annual returns of investment of at least 20% per year, while more than 80% look for a 30% to 40% annual return. The high risk nature of investing in emerging and expanding small businesses typically requires investors to seek investment opportunities with aggressive return on investment possibilities.<sup>10</sup>

### II.A.5. Deal

Central to a successful transaction between investor and entrepreneur is the "deal" -- the specific arrangement governing the amount of capital provided, the purposes for which it will be used, and the investor's role in the company.

**Amount of Total Capital Sought:** More than 60% of ES investors look for investing in companies seeking a total of \$100,000 to \$5 million in capital.

**How the Capital Will Be Used:** More than 75% of ES investors look for their investment to be used for working capital, startup, and especially expansion purposes. More than 60% of ES investors look for their capital to be spent on working capital, marketing and sales, R&D, and equipment. Most ES investors look for their investment to be used to increase the company's future profits by more rapidly commercializing

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<sup>10</sup> Early-stage investors in New England and California indicated a median rate of compounded annual rates of return of 50-100% for seed-stage firms to 22-34% for established firms (Tymes, p. 361).

existing products, or by positioning the company to develop superior products in the future.

**Investor's Role:** More than 60% of ES investors look for opportunities to be actively involved with the company as a member of the company's board of directors or as a consultant to the business.<sup>11 12</sup>

### II.A.6. Exit Strategy

An investment's value is determined in part by how long it is held and the manner in which it is "cashed out" or sold.

**Time Till Cash Out:** More than 70% of ES investors look to cash out their investment within 1 to 5 years. Less than

half of ES investors look to hold on to stock for more than five years.<sup>13</sup>

**Cash Out Method:** Approximately 80% of ES investors look to cash out their ownership through an initial public offering (IPO), and more than 70% look to sell their stock to an external buyer.

## II.B. LATER STAGE INVESTORS

Later stage (LS) investors are usually venture capital firms, investor groups, investment bankers, and other finance organizations that place \$1 million or more in expanding, established companies. They usually form a bridge between startup and an acquisition or public offering of a company.

### II.B.1. Obtaining Leads

LS investors rate the following sources of investment leads to be "high" or "medium" levels of effectiveness (see Table 2).

Like ES investors, LS investors rely heavily on personal research and professional contacts for deal flow.

### II.B.2. Evaluating Viability

Later stage investors place a very high priority emphasis on the *current* management team, followed by market potential (the potential growth of the

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<sup>11</sup> These findings are consistent with other research which shows that roughly 75% of early stage investors like to be "actively involved" with ventures, and that a majority of early stage investors like to be represented on the Board and/or provide consulting help (Tymes, p. 359).

Connected with this issue is the degree of control the investor will typically desire and then settle with the company. Research has shown early stage investors are generally indifferent or not inclined to seek voting control, in part perhaps because investors respected the need for entrepreneurs to keep sufficient equity positions and to have equity to give in later stages of financing. The studies showed that 20% or less of early stage investors attained over 50% voting control, while roughly 50% had less than 10% of voting shares (Tymes, p. 356).

<sup>12</sup> The "chemistry" between entrepreneur and investor is often a critical factor, as is the willingness of company to work closely with the investor and potentially accept later rounds of capital from that investor (Hall, p. 40).

<sup>13</sup> These findings are consistent with other studies of early stage investors which show that 30-50% expect to liquidate their investment within 3-5 years, and 30% within 5-7 years (Tymes, p. 359).

**Table 2. Effective Sources of Leads (% of Responses)**

**"High" Effectiveness Sources**  
Independent Research (38%)  
Business Associates (35%)

Clients, Customers, Suppliers (35%)

**"Medium" Effectiveness Sources**

Business Associates (42%)

Business Brokers, Finders (42%)

Other Entrepreneurs (38%)

Capital Networks (38%)

Venture Capital Firms (30%)

Clients, Customers, Suppliers (27%)

Other Investors (27%)

Accountants, Lawyers, CPAs (27%)

Investment Banks (27%)

Investment Meetings, Forums (27%)

market in the future), profit potential, market need (the need of the market for a particular product or service) and track record (the historical operation of the firm).

Over 90% of LS investors look for business plans that are complete and current. More than 50% of LS investors "strongly consider" the firm's business plan. Roughly 80% of LS investors avoid situations where the business plan needs revision, and 90% avoid investing in businesses that have no business plan.

### II.B.3. Track Record

Later stage investors tend to look for strong evidence that the firm has staying power, a marketable product, and can be profitable.

**Business Stage:** The vast majority of LS investors seek to work with established firms that are at least 2 years old. More than 60% of LS investors avoid firms that are not yet operational.

**Revenues Last 12 Months:** More than two-thirds look for firms with \$1-20 million in sales. Within this range, three-quarters of LS investors look for firms with \$5 million to \$10 million in annual sales.

**Profits Last 12 Months:** Most LS investors look for pre-tax annual profits of \$100,000 or more. Two-thirds look for

firms with profits of \$1 million or more. Roughly 30% of LS investors avoid firms with little or no profit.

### II.B.4. Potential

In general, LS investors seek to invest in companies that are projected to grow rapidly, be profitable in the near term, and yield a strong rate of return on investment.

**Projected Sales in 5 Years:** Most LS investors look for firms projected to reach at least \$20 million in annual sales within 5 years. More than three quarters look for firms with projected annual sales of at least \$50 million.

**Cash Flow Break Even After Financing:** More than two thirds of LS investors look for firms that achieve break even in less than one year. Most LS investors avoid firms that have cash flow break even points of 5 or more years.

**Projected Annual Rate of Return:** Most LS investors look for an annual return on investment of 30% or more.

### II.B.5. Deal

LS investors tend to invest a significant quantity of capital in uses that will enhance the existing operational and financial efficiencies of the company and will augment existing profit.

**Amount of Total Capital Sought:** More than 60% of LS investors look for companies seeking investment capital of at least \$1 million.

**How the Capital Will Be Used:** More than two-thirds of LS investors want their investment to be directed towards expansion, working capital, or acquisition/merger purposes. A majority also look for capital to be used for mezzanine and pre-IPO financing, i.e. capital to position the firm for going public or for being acquired.



Most LS investors want capital to be spent on new equipment or working capital.

**Investor's Role:** Most LS investors look for opportunities to join the Board of Directors. More than 40% look for consulting opportunities with the business. A quarter avoid situations in which they are asked to have no significant involvement.

#### **II.B.6. Exit**

Most LS investors plan to hold an interest in a company for a couple of years, and then to exit through an IPO or acquisition.

**Time Till Cash Out:** More than 80% of LS investors look to cash out their investment in a company within 3 to 5 years. More than 40% of LS investors avoid holding stock more than 7 years.

**Cash Out Method:** More than two-thirds of LS investors seek to cash out their ownership through an initial public offering (IPO), followed by selling stock to an external buyer. A majority also look for cash outs through partnership distributions, internal sales, and refinancing.

### **III. SUMMARY OF FINDINGS**

Investors are very selective about the P2 companies they will finance. The Center's findings point to some characteristics that may increase the attractiveness of some P2 firms to some investors. Very generally, the data suggests that most investors will look favorably upon P2 firms with the following characteristics:

- A positive reputation in the industry;
- A strong management team;
- Markets that have a compelling potential and need for the firm's technology, products, or services;
- Product and/or services that provide maximum value to customers;
- A business structure and strategy which maximizes the firm's profit;
- Current and complete business plans;
- A business focus on growing current sales and profits;
- A 5-year business growth strategy to realistically achieve annual sales of at least \$10 million, if early-stage, and \$40 million, if later stage;
- A plan that will utilize the capital to achieve cash flow break even within 3 years, if early-stage, and within 1 year, if later stage;
- Projected 5-year annual rates of return of at least 30-40%;
- Plans to raise \$500,000 to \$5 million, if early-stage and at least \$1 million, if later stage;
- Intentions to use new capital for expansion, equipment, or working capital;
- A willingness to include the investor on the Board of Directors and/or in a consulting capacity; and
- Provides an exit strategy that allows the investor to cash out in 3-5 years,

preferably through an acquisition of the company or an IPO.

Of course, many P2 firms whose business growth strategies have these characteristics may not be suitable for many investors. Similarly, many P2 firms without these characteristics may be attractive to some investors. All else being equal, however, firms with these characteristics may well be better positioned to efficiently and effectively raise the capital they seek.<sup>14</sup>

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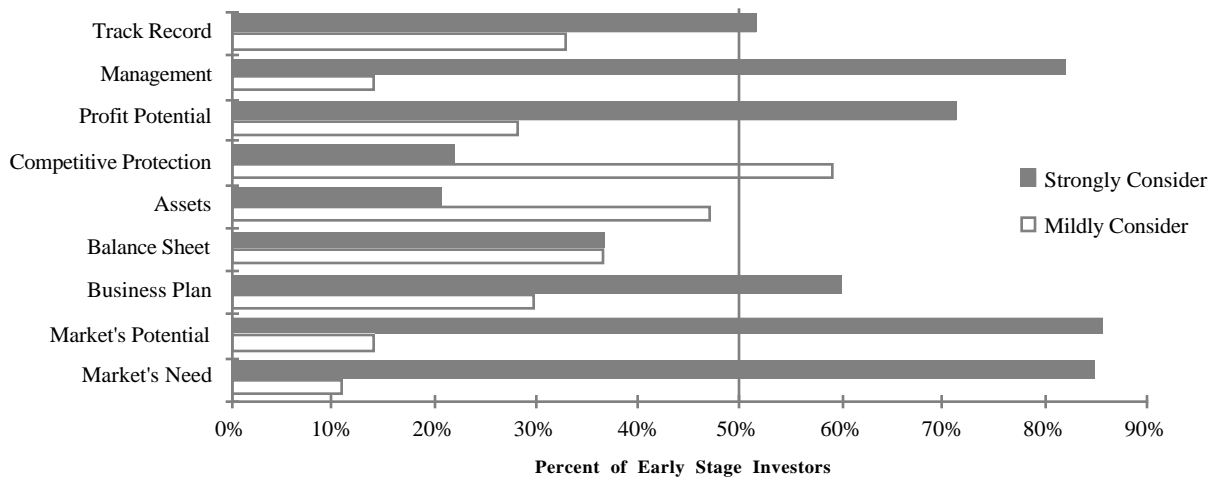
<sup>14</sup> Several additional lessons expressed by technology-based entrepreneurs seeking equity funding include:

- Raise more money earlier;
- Prepare and present cases for funding more effectively - rely more on “sizzle,” and “sex appeal;”
- Seek more and a broader mix of investors - more individuals and small successful businesses with related activities; and
- Define relationships with individual investors more carefully before the deal is finalized - “get to know the investor better, temper expectations, keep distance, and do not be over-impressed with investor knowledge” (Freeear, p. 231).

## APPENDIX B

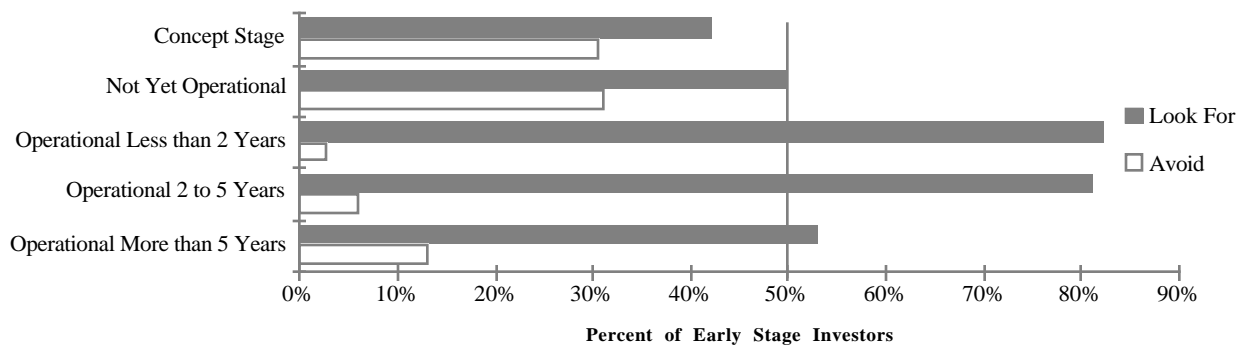
### WHAT EARLY-STAGE INVESTORS LOOK FOR

**Table ES-1. How Strongly Investors Consider the Following Characteristics When Deciding to Invest or Lend to a Private Company**

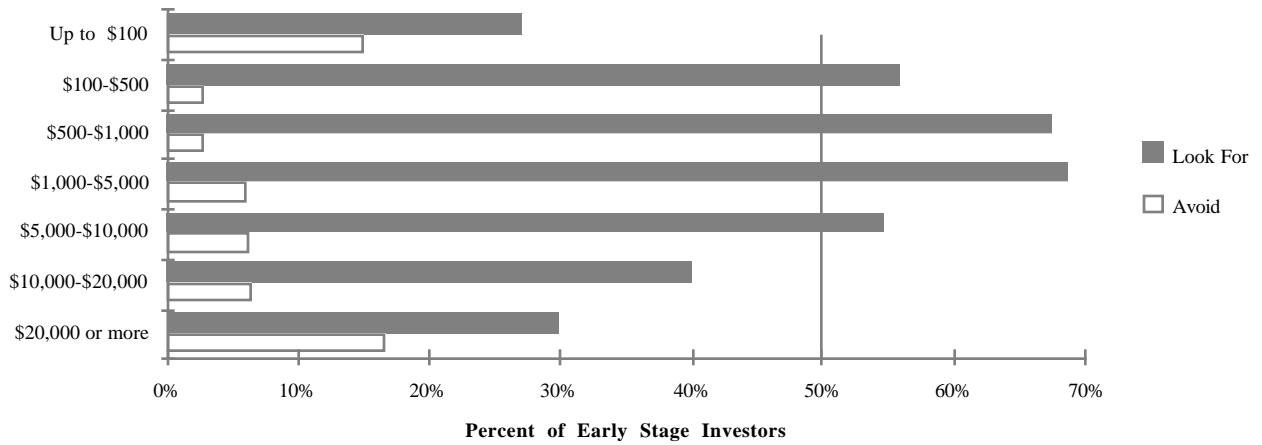


Note: Investors were free to indicate that they "Look For", "Avoid" or "Ignore" more than one Characteristics within each category. The percentages of investors that ignore a specific characteristics were not included in these summaries.

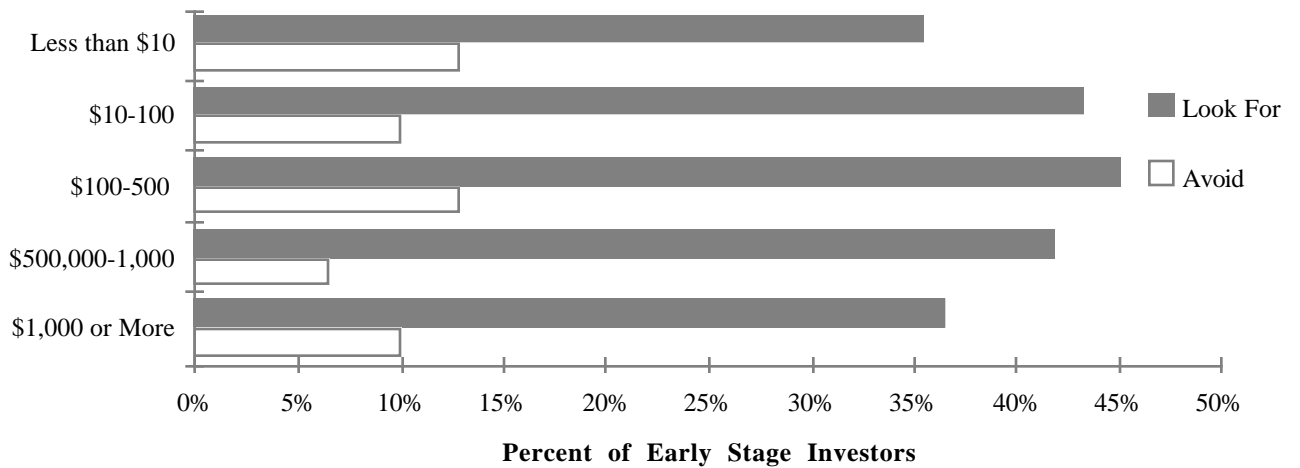
**Table ES-2. Business Development Characteristics**



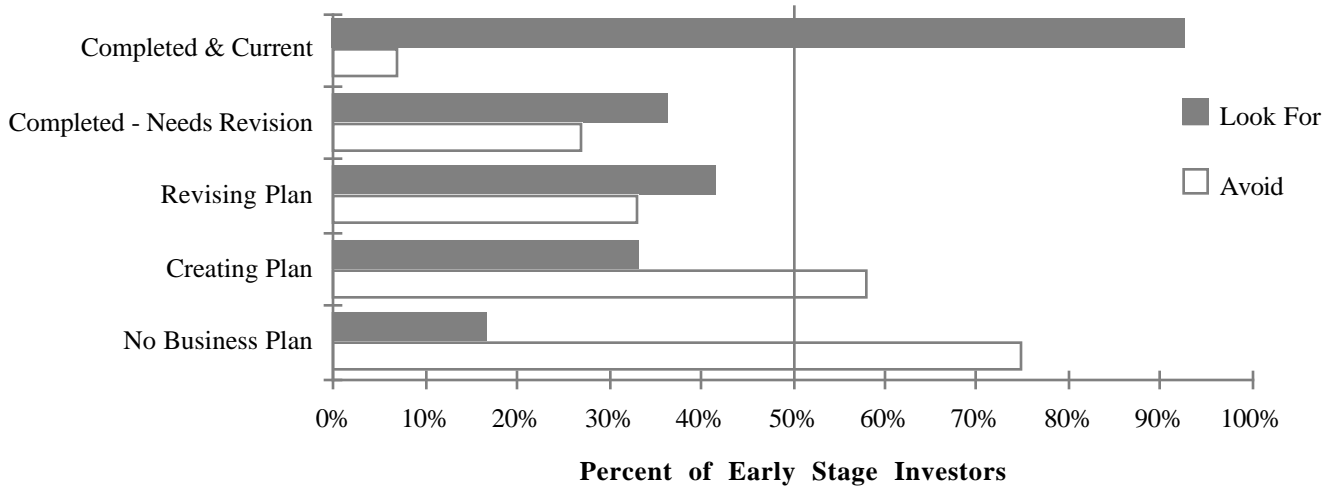
**Table ES-3. Sales Last 12 Months (\$000)**



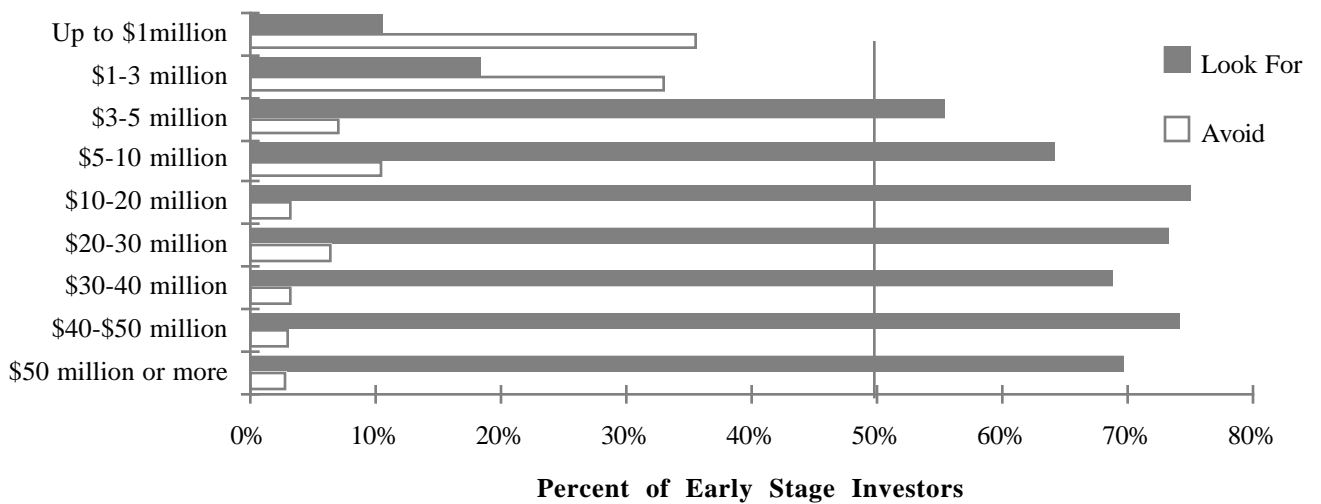
**Table ES-4. Profits Last 12 Months Before Interest and Taxes (\$000)**



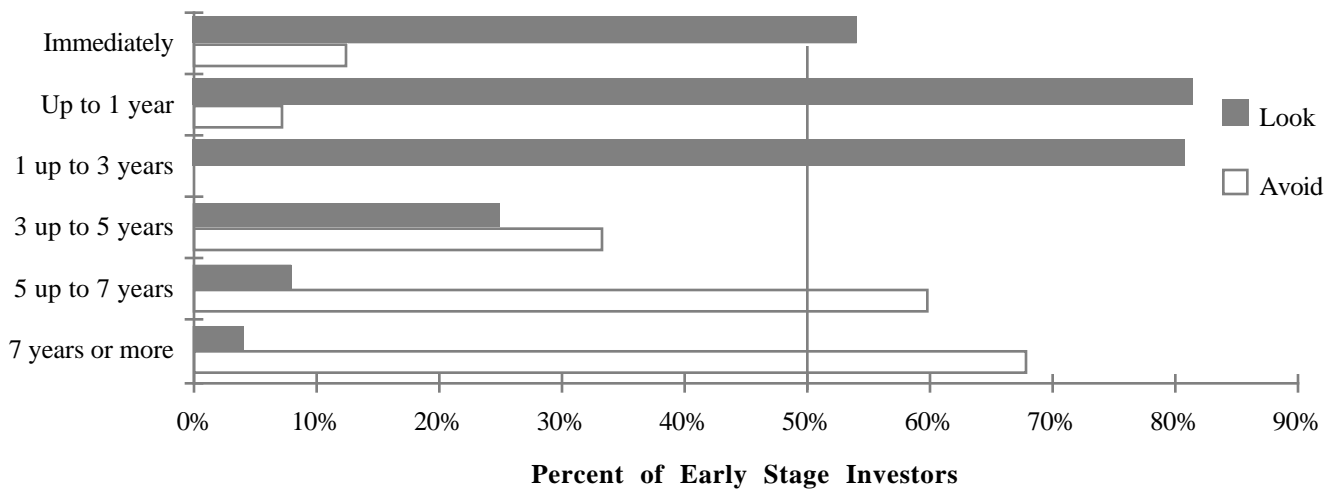
**Table ES-5. Status of Business Plan**



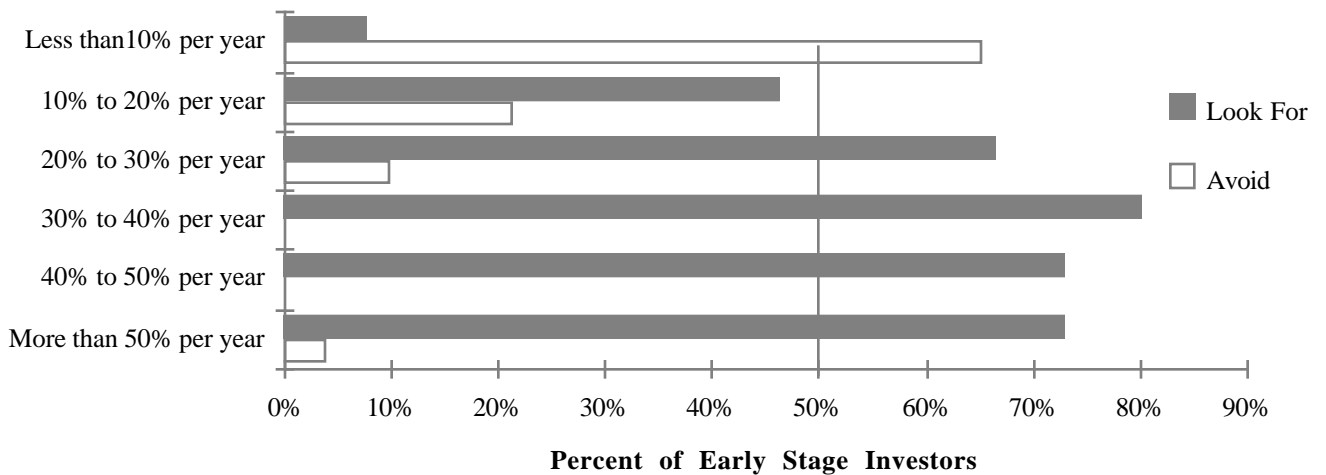
**Table ES-6. Projected 5-Year Sales (\$000)**



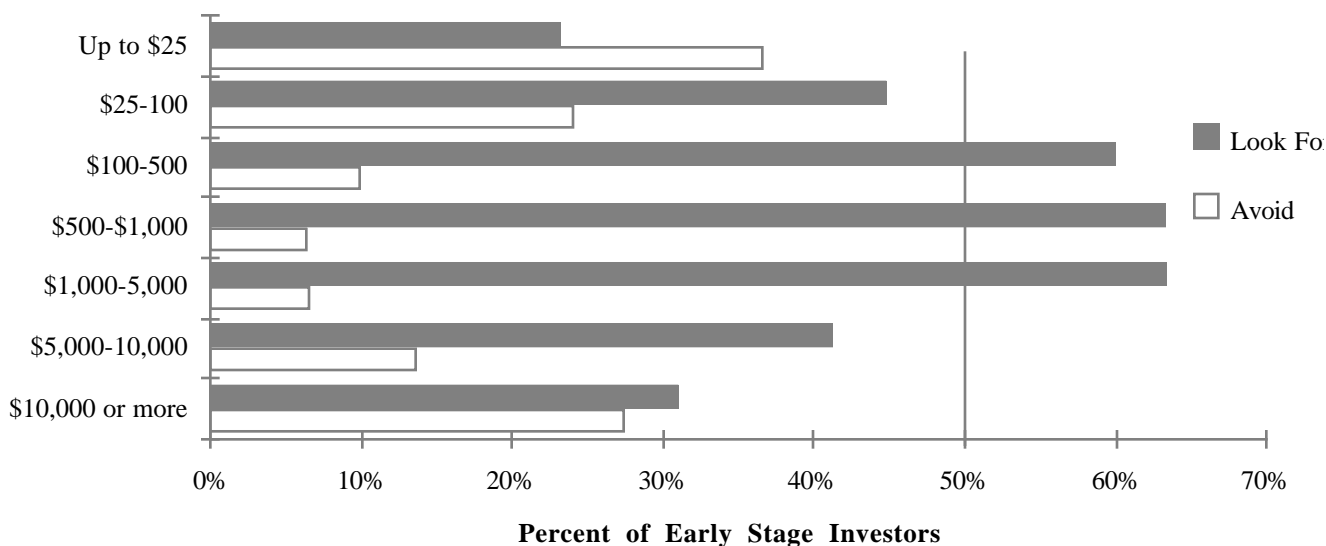
**Table ES-7. Projected Cash Flow Break Even Point After Financing**



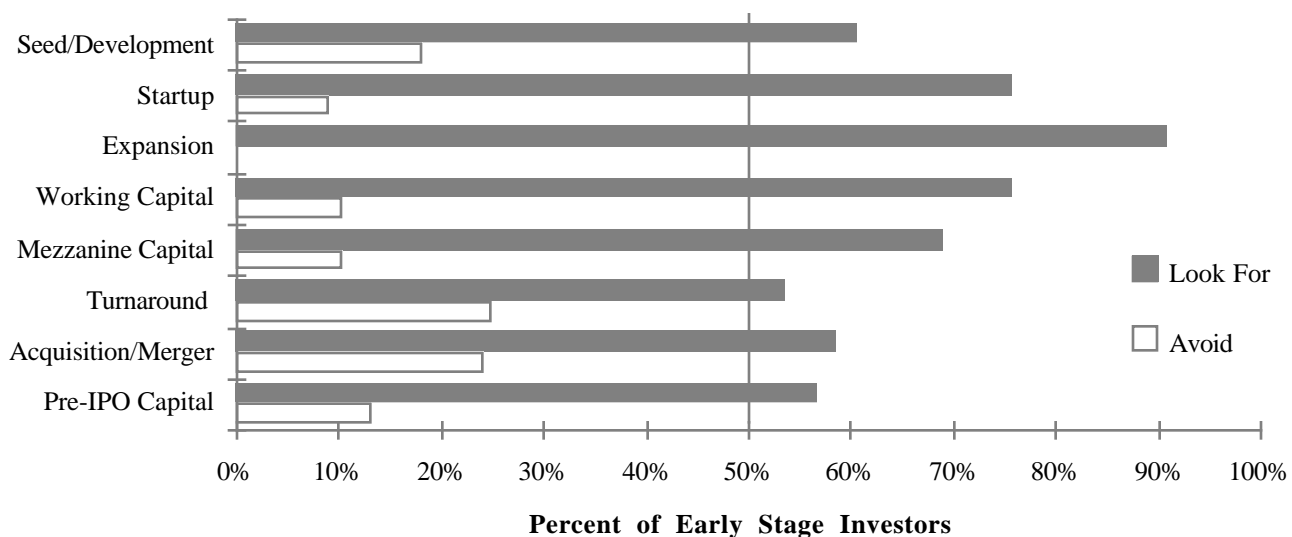
**Table ES-8. Projected Investor Annual Rate of Return Over 5 Years**



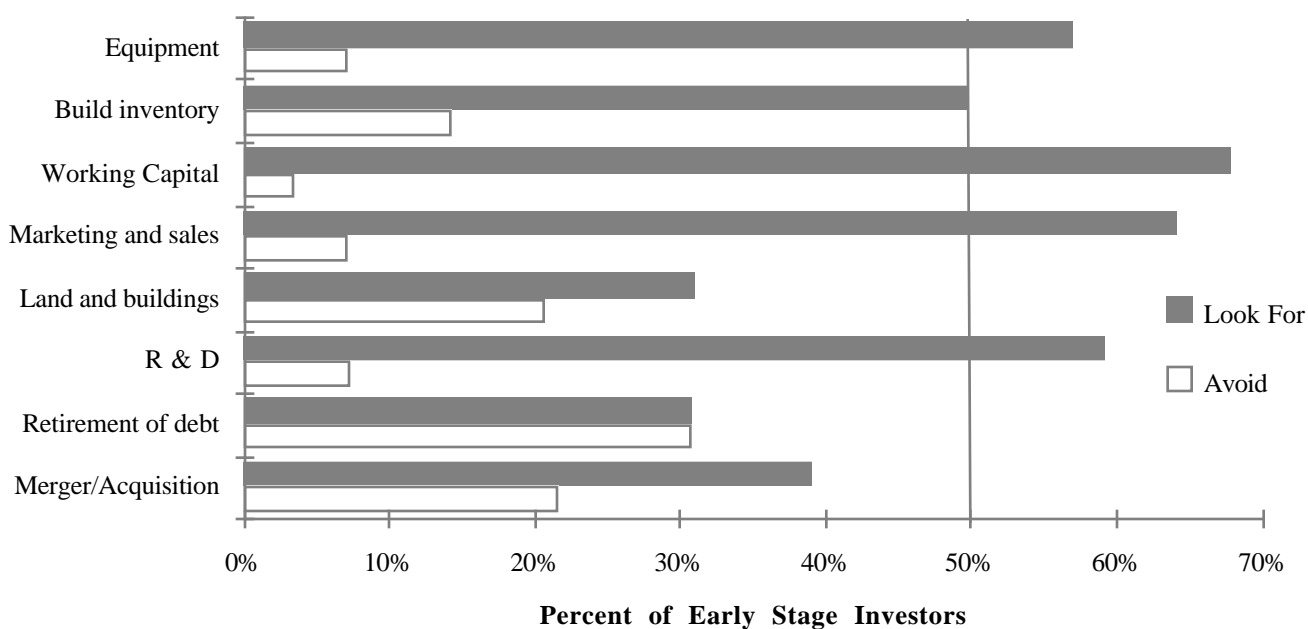
**Table ES-9. Total Capital Sought by Firm (\$000)**



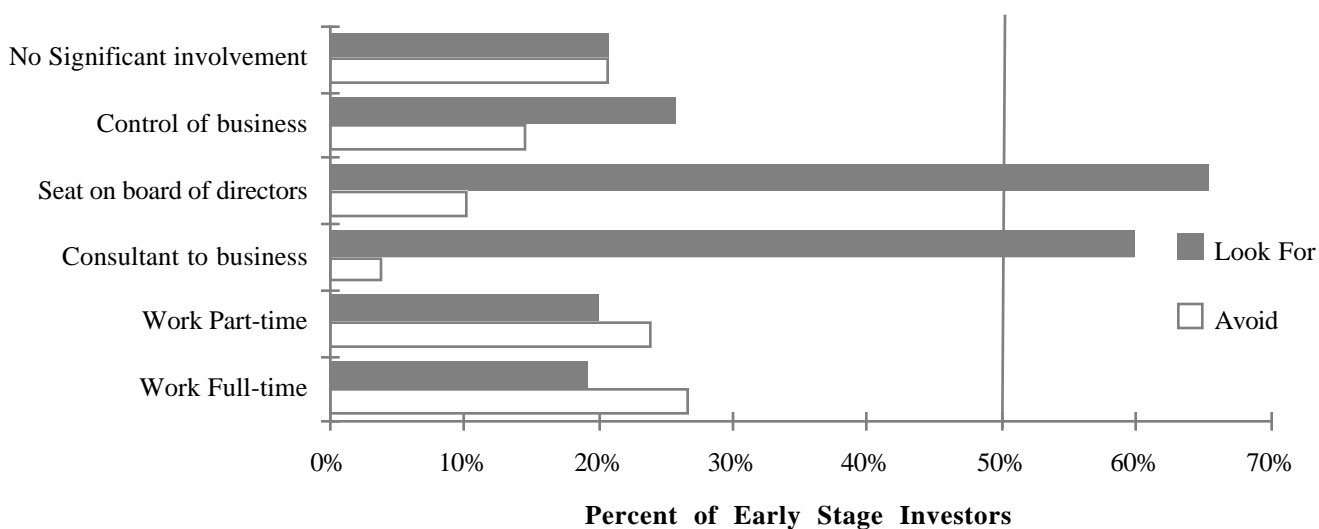
**Table ES-10. Purpose of Capital**



**Table ES-11. How Capital Will be Spent**

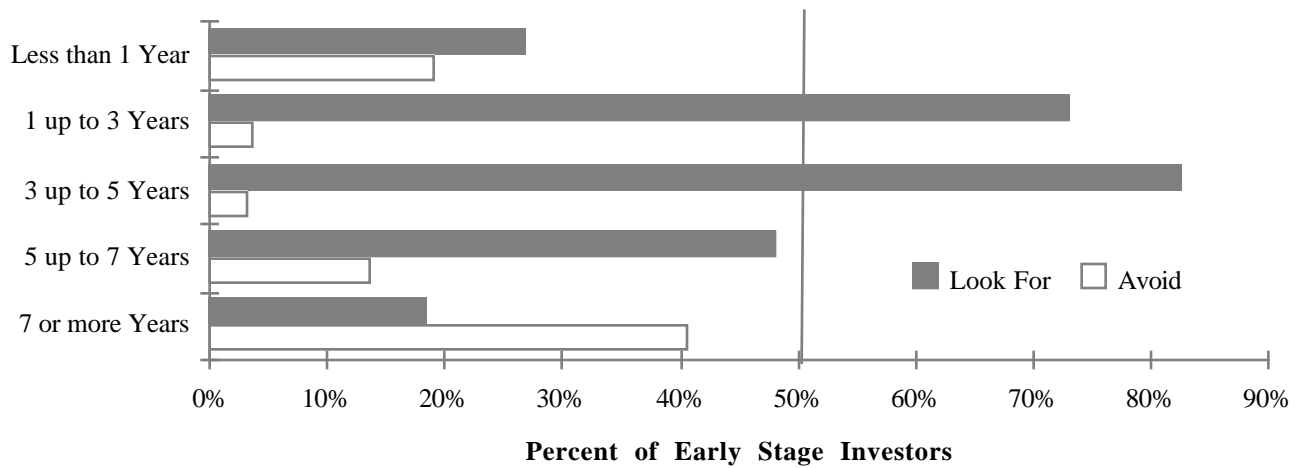


**Table ES-12. Proposed Investor Role(s)**

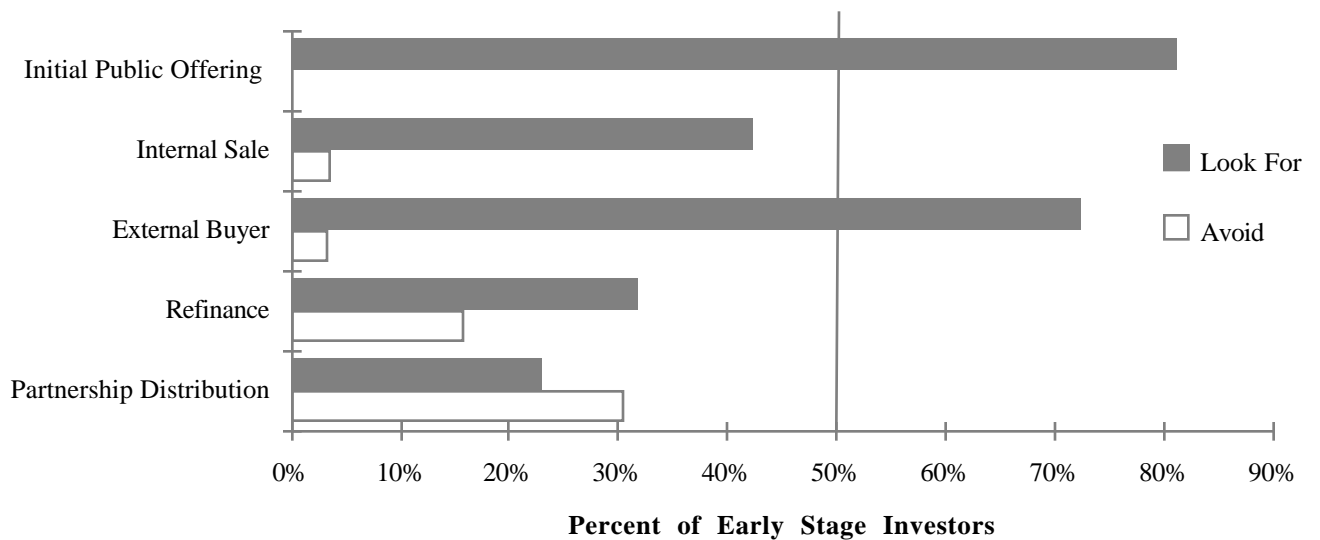




**Table ES-13. Projected Cash Out Period**

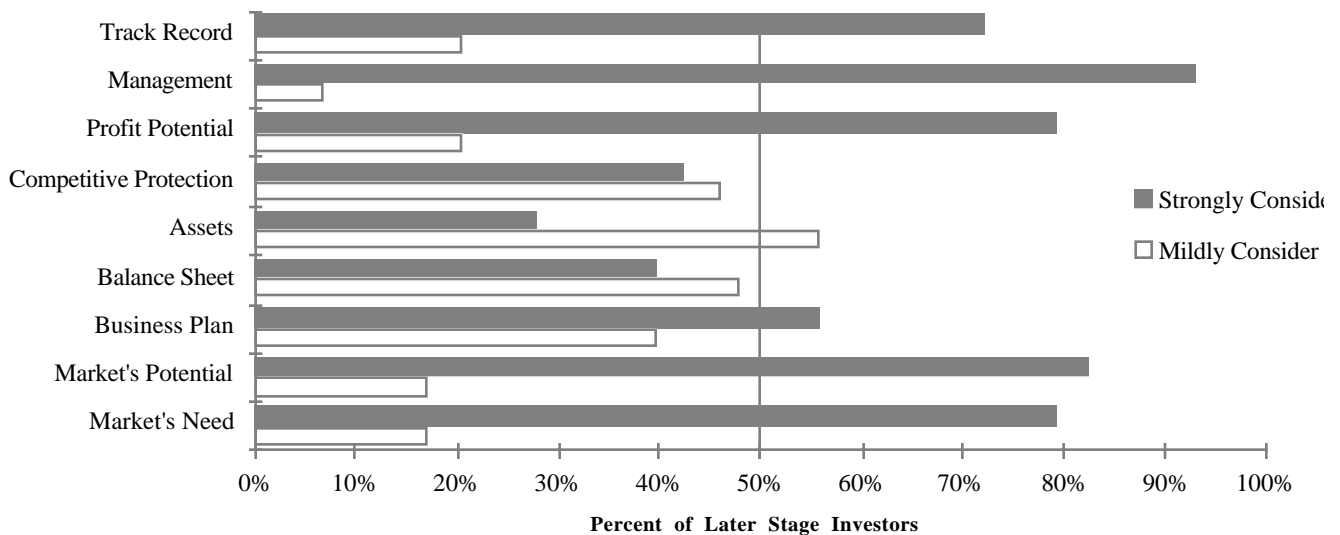


**Table ES-14. Potential Cash Out Method**



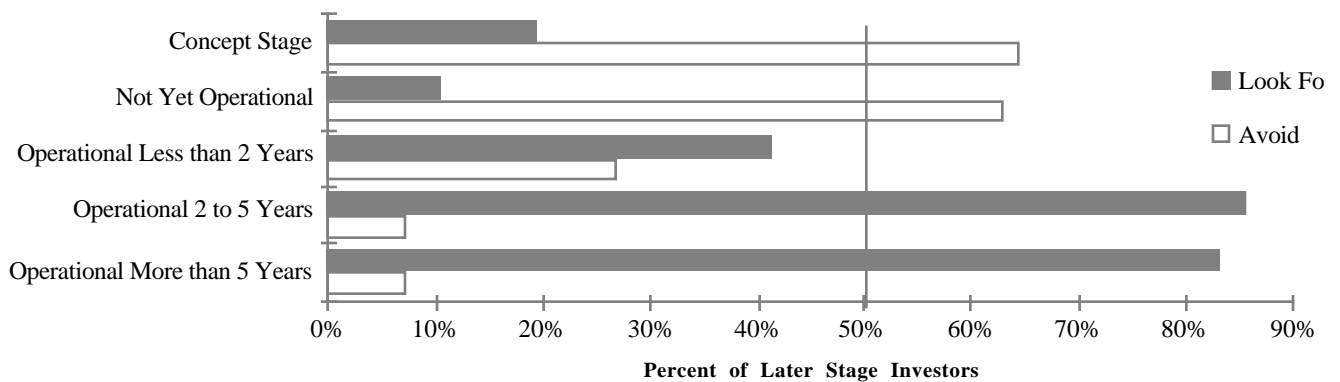
## WHAT LATER STAGE INVESTORS LOOK FOR

**Table LS-1. How Strongly Investors Consider the Following Characteristics When Deciding to Invest or Lend to a Private Company**

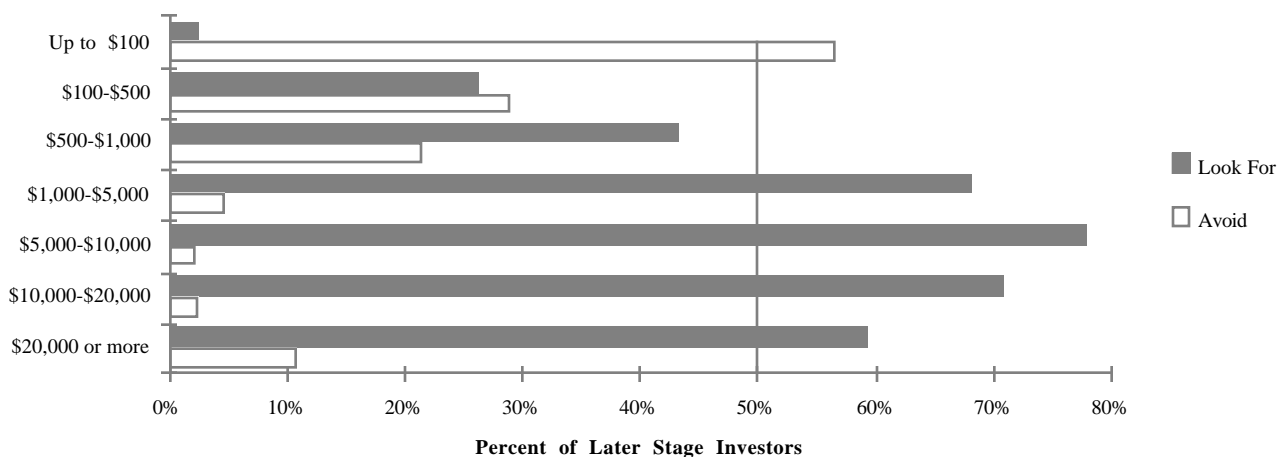


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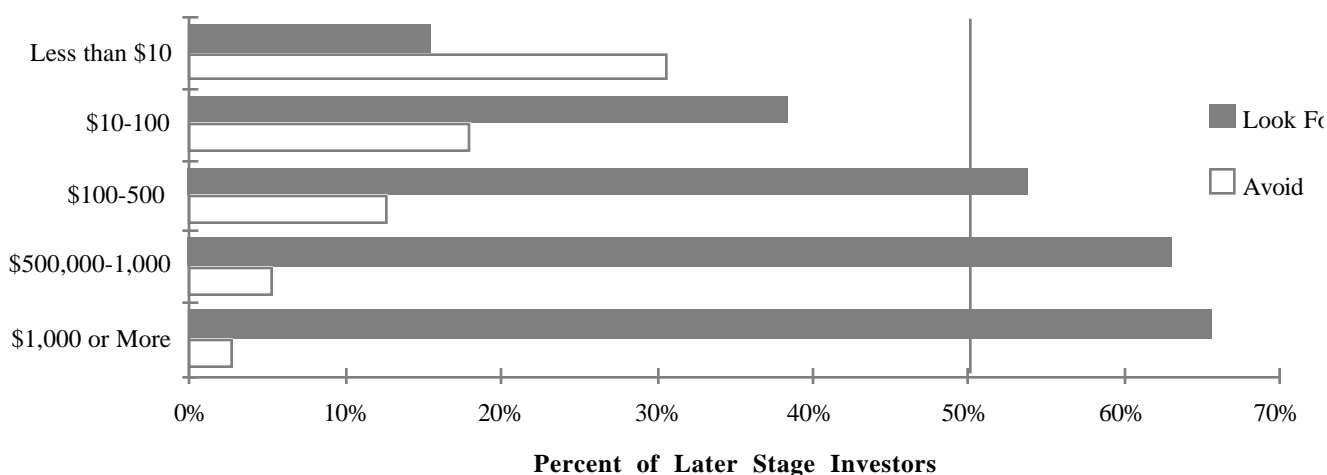
**Table LS-2. Business Development Characteristics**



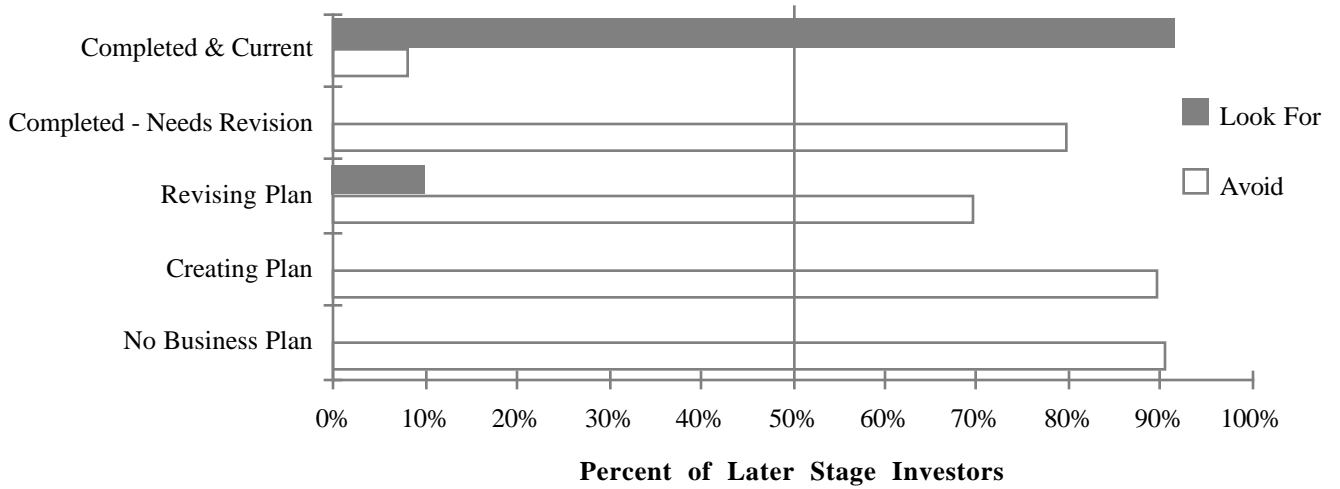
### LS-3. Sales Last 12 Months (\$000)



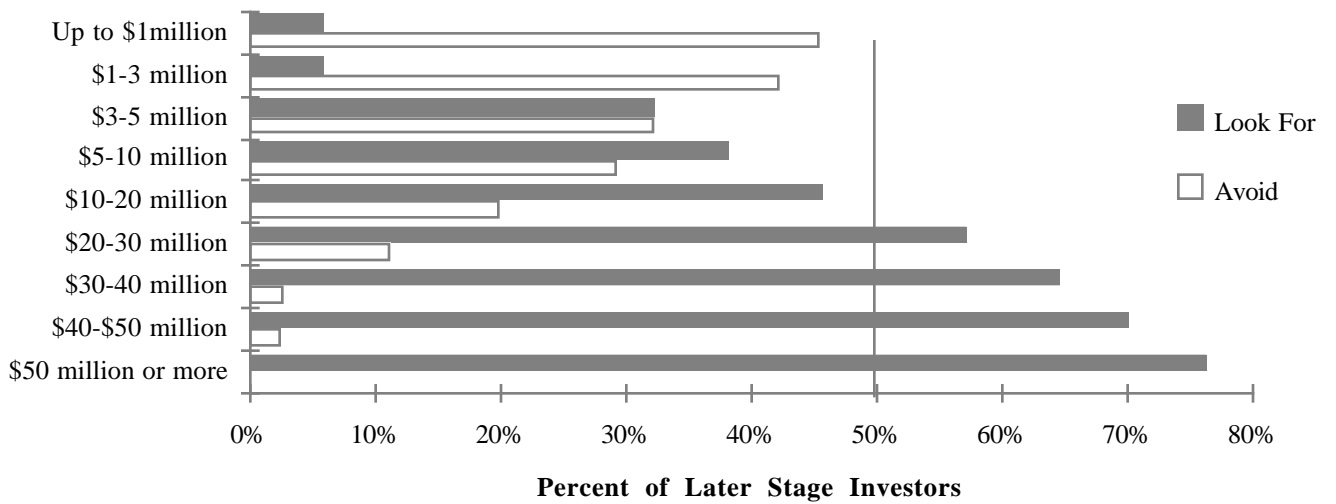
**Table LS-4. Profits Last 12 Months Before Interest and Taxes (\$000)**



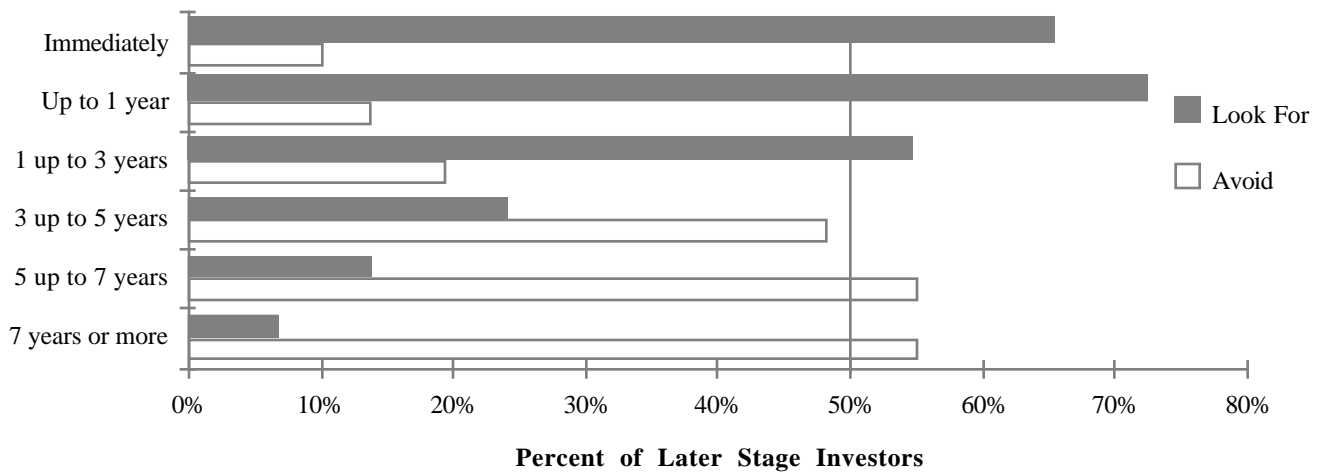
**Table LS-5. Status of Business Plan**



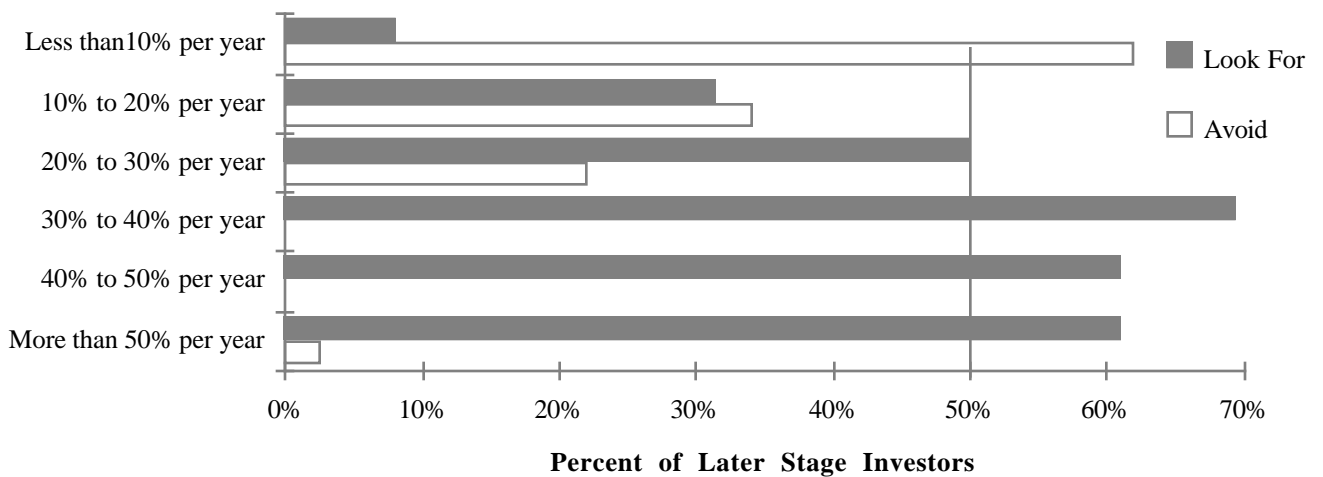
**Table LS-6. Projected 5-Year Sales (\$000)**



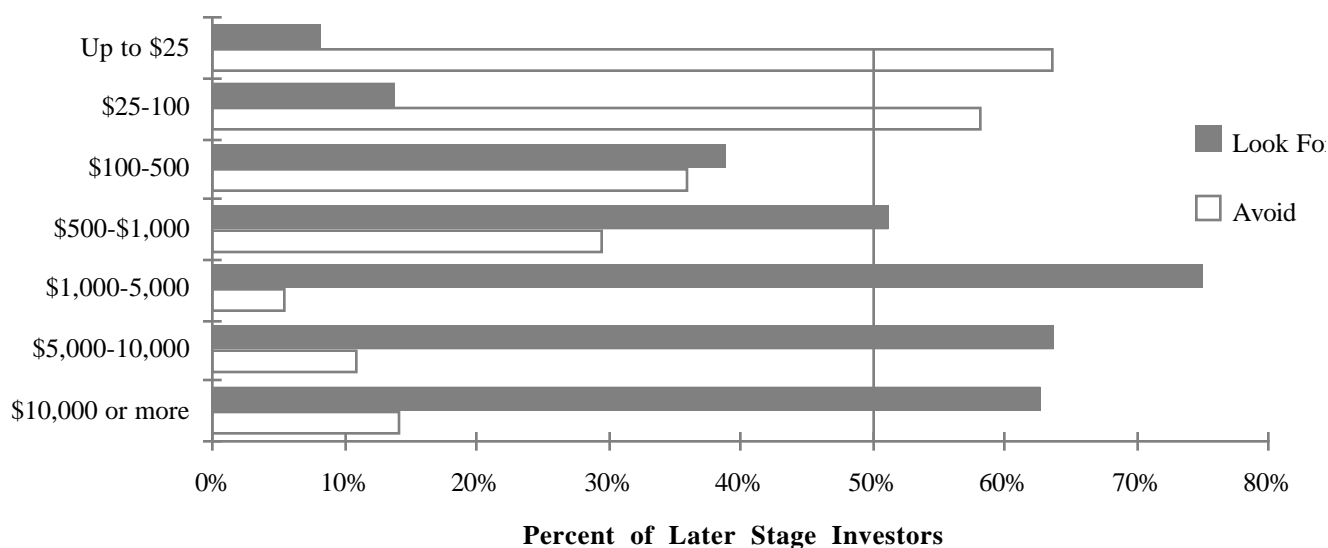
**Table LS-7. Projected Cash Flow Break Even Point After Financing**



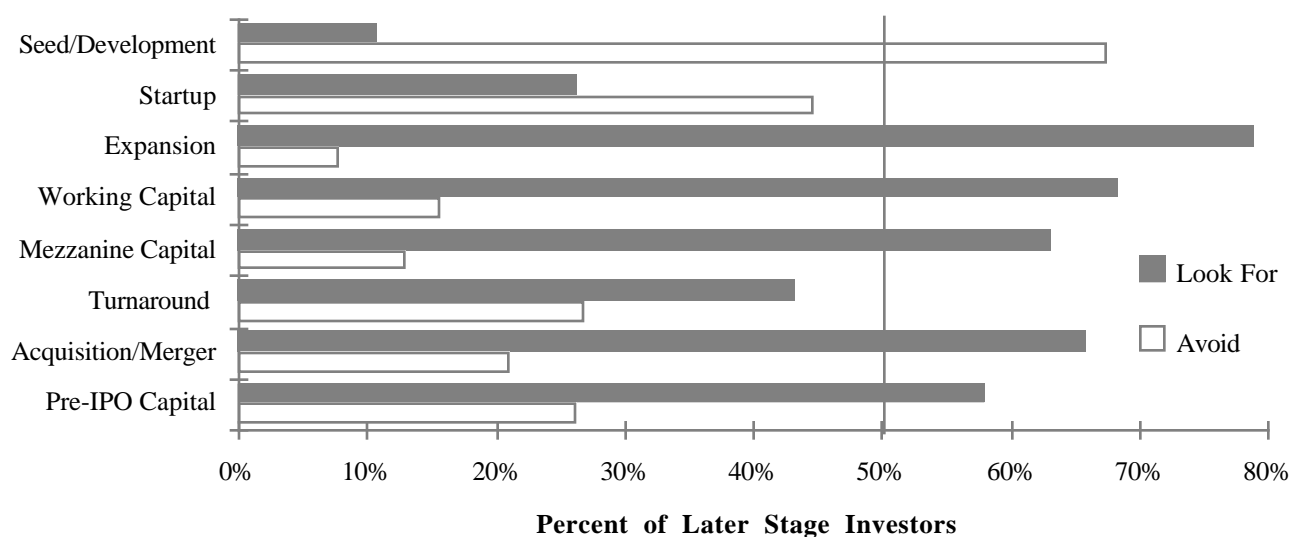
**Table LS-8. Projected Investor Annual Rate of Return Over 5 Years**



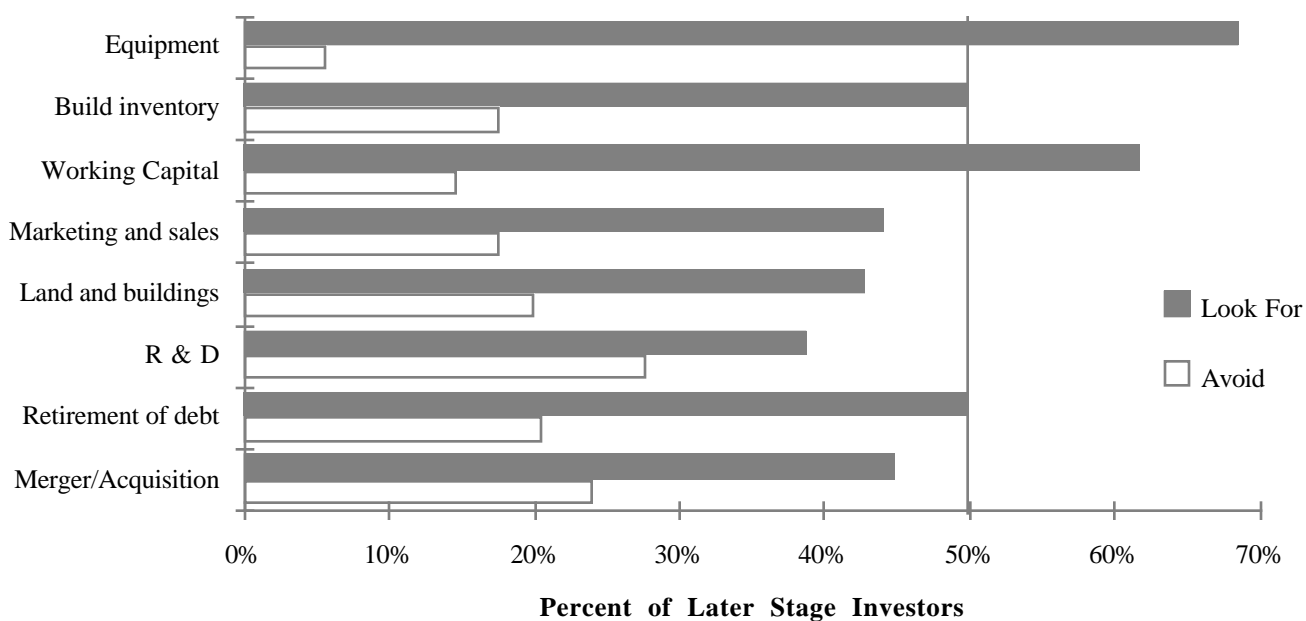
**Table LS-9. Total Amount of Capital Sought by Firm**



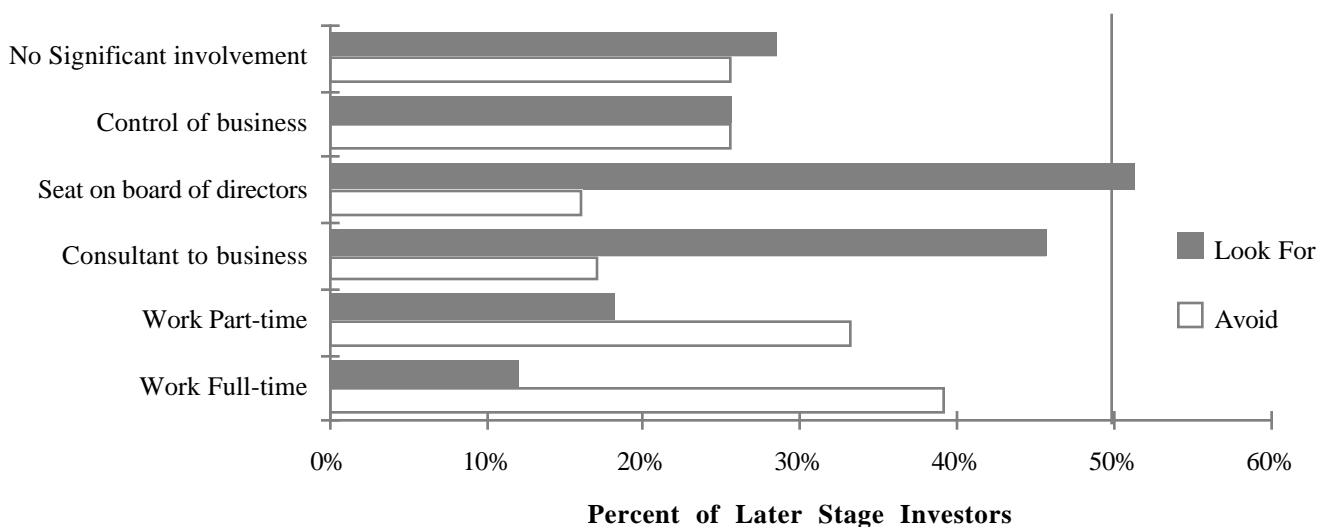
**Table LS-10. Purpose of Capital**



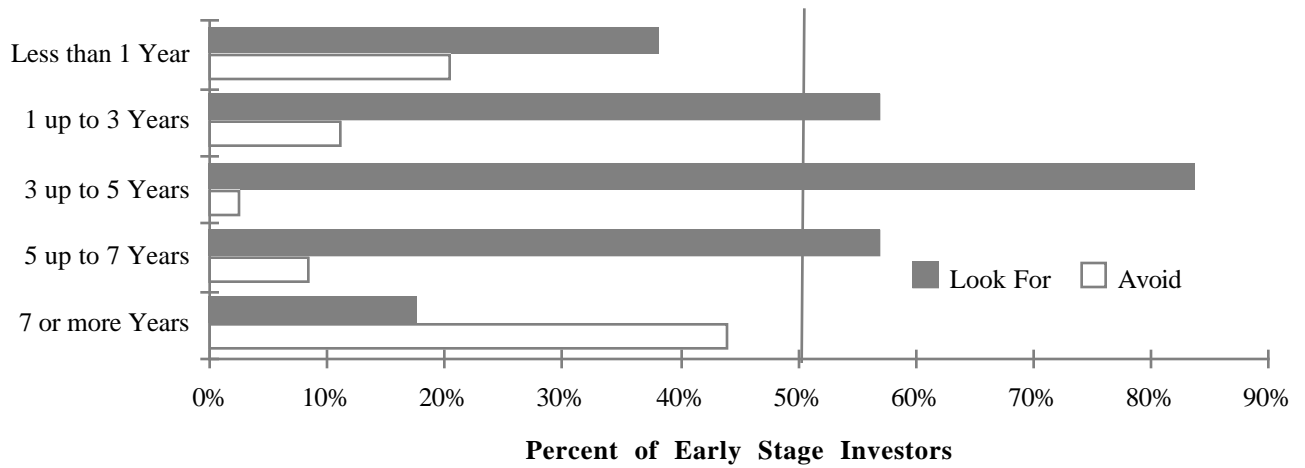
**Table LS-11. How Capital Will be Spent**



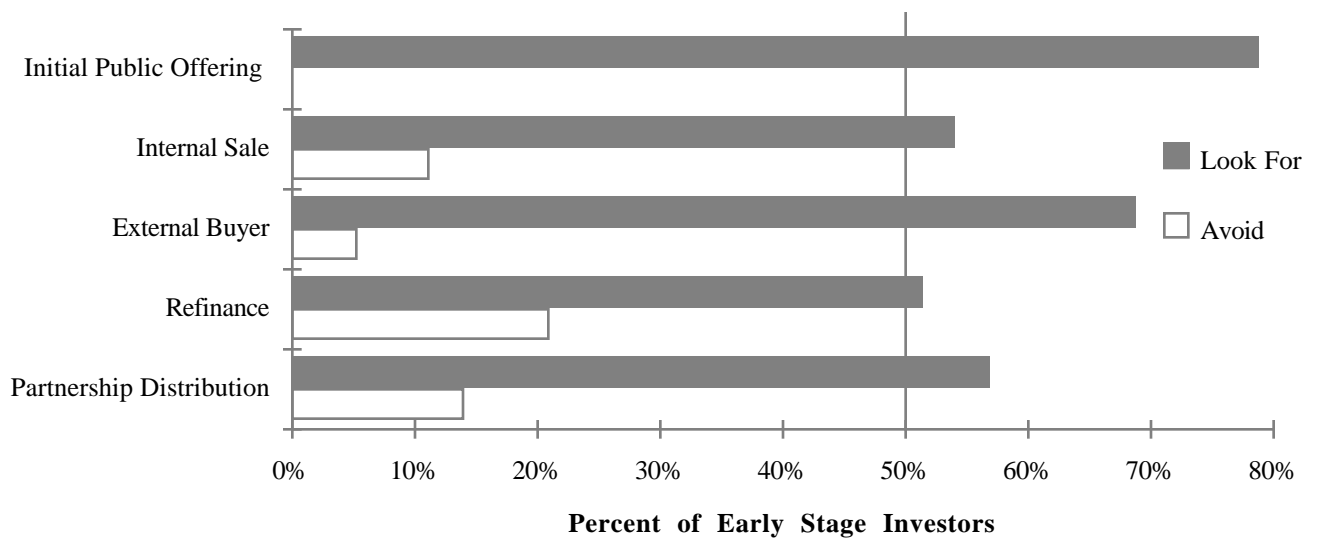
**Table LS-12. Proposed Investor Role(s)**



**Table LS-13. Projected Cash Out Period**



**Table LS-14. Potential Cash Out Method**





# APPENDIX A